



CIVIL ENGINEER / SENIOR CIVIL ENGINEER

Purpose:

To actively support and uphold the City's stated mission and values. To perform professional engineering work in the design, investigation, and construction of public works and related projects; and to act as project manager of assigned projects.

Supervision Received and Exercised:

Civil Engineer

Receives general supervision from higher level staff or from other supervisory or management staff.

May exercise technical or functional direction over technical staff.

Senior Civil Engineer

Receives direction from higher level staff or from other supervisory of management staff.

Exercises functional and technical direction over technical staff. May exercise direct supervision over technical staff.

Distinguishing Characteristics:

Civil Engineer

This is the entry level class in the professional engineering series not requiring registration. Incumbents of this class perform the moderately difficult professional engineering work. Civil Engineers are normally considered to be on a continuing training status, and as assigned responsibilities and breadth of knowledge increase with experience and registration is received, may reasonably expect their positions to be reassigned to the next higher class of Senior Civil Engineer.

Senior Civil Engineer

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Civil Engineer/Senior Civil Engineer (continued)

This is the journey level class within the professional engineering series requiring registration. Employees within this class are distinguished from the Civil Engineer by the greater complexity of the assignments received and by the greater independence with which an incumbent is expected to operate. Incumbents are expected to complete complex engineering assignments requiring the use of judgment and initiative in development solutions to problems, interpreting general policies, and determining work assignments. Employees at this level received only occasional instruction or assistance as new and unusual situations arise, and are fully aware of the operating procedures and policies of the work unit. Positions in the class are flexibly staffed and are normally filled by advancement from the lower class of Civil Engineer, or when filled from the outside, require prior advanced technical or professional engineering work experience and requires registration as a professional engineer in the State of Arizona.

Essential Functions:

Duties may include, but are not limited to, the following:

- Design and prepare plans and specifications and cost estimates for public works projects including water and sewer lines, storm drains, irrigation facilities, sprinkler systems, paving projects and other street improvements, large scale City facilities and buildings, various park projects, and related projects;
- Determine steps to be taken to process project; prepare estimates as to time needed; schedule and coordinate the acquisition of data; coordinate the completion of designs in accordance with established schedule;
- Participate in the planning, checking, review, and processing of plans for private developments affecting City streets, sewers, drains and related public works facilities; ensure that they meet all City-imposed requirements; analyze materials and design data submitted to the City. Recommend approval or disapproval of alternate designs or materials based upon an analysis of supporting materials from a project applicant;
- Coordinate public works activities with other City departments, divisions and sections and with outside agencies including consultants, engineers, developers and contractors;
- Provide technical and professional engineering support services relative to assigned area of responsibility; provide assistance to construction inspectors in the interpretation of plans and resolutions of problems during construction; review as-built plans to ensure compliance with original plans and specifications;

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- Prepare special engineering studies and reports; perform special assignments on engineering problems as necessary; prepare specific studies for council presentation and other City sponsored study groups;
- Review engineering calculations and designs of other engineers or engineering technicians;
- Prepare maps, deeds, legal descriptions and other contract documents;
- Develop revised design and construction standards for public works structures and appurtenances;
- Review field projects being studied, designed or constructed; investigate field problems affecting property owners, contractors and maintenance operations. Conduct field investigations, inspections and on-site meetings as necessary to verify compliance with City of Tempe standards, codes, ordinances and approved drawings and specifications;
- Prepare estimates and feasibility reports for new or modified services and structures;
- Prepare various applications for State and Federal permits and grants;
- Serve as staff to a variety of City commissions, boards, and committees on public works or engineering matters;
- Research publications and industry information sources to remain current with modern developments, principles and procedures.
- Assign routine investigation, design and drafting tasks to technical staff; request survey, mapping, and data collection; review completed work; assist in the solution of difficult problems;
- Administer and enforce City Codes and standards on engineering projects;
- Provide customer service assistance, including over the counter plan review services and provision of technical advice;
- Perform related duties as assigned.

When Assigned to the Transportation Division:

- Perform technical transportation engineering and computer applications work to support the Tempe transportation system, development and operations of the

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Tempe transportation operations center, the Light Rail transit (LRT) project and other Intelligent Transportation System (ITS) initiatives.

- Develop, monitor and updates traffic signal timing plans and implement citywide traffic signal coordination plans using the City's traffic signal computer system; conduct field observations to test traffic signal timing programs and related ITS operations.
- Participate in developing the plans, specifications and estimates for the Traffic / Transit Operations Center and Transit maintenance facilities; coordinate the development of the traffic signal / train interface for Tempe; interact with private developments with regard to LRT signal and other traffic issues.
- Perform related duties as assigned.

When Assigned to the Transportation -Traffic Engineering:

- Participate in the planning, checking, review , and processing of plans for private developments affecting City streets, and related public works facilities; review/evaluate, and approve traffic impact studies for proposed projects prior to site plan approval; ensure that they meet all City-imposed requirements; analyze materials and design data submitted to the City
- Prepare special engineering studies and reports including parking studies, accident analysis, signal studies, Left –turn signal studies, high accident location studies and studies concerning traffic conditions in neighborhoods and around schools; perform special assignments on engineering problems as necessary; prepare specific studies for council presentation and other City sponsored study groups.
- Determine traffic control measures to implement in response to complaints or emergency situations
- Develop revised design and construction standards on public works structures and appurtenances; develops traffic engineering standards, specifications, and procedures for designing intersections, curbs, lanes, signs, striping, and signals.
- Attends meetings, serve as staff, and makes presentations to a variety of city Commissions, boards, and committees on public works or engineering matters.
- Interpret, apply and ensure compliance with applicable federal, state, and local codes, ordinances, regulations, standards, specifications, policies, and procedures: ensure compliance with standards relating to traffic signing, traffic striping, and installation and maintenance of traffic control devices, ensure compliance with standard engineering principles for review of infrastructure plans; ensure compliance

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with approved construction plans/specifications; initiate any actions necessary to correct deviations and violations.

- Provide customer service on major sensitive traffic problems and respond to questions/complaints related to traffic issues: receive, review and/or investigate citizens' requests for traffic mitigation in neighborhoods, signing requests, speed limit adjustments, or safety devices; coordinate traffic studies, analyze findings, and prepare reports/recommendations; provide information, research problems, initiate problem resolution, and advise complainant of results.
- Manage the city's Neighborhood Traffic Management Program including working with citizen through the process and coordinating Neighborhood Traffic Management Projects with other departments through construction.
- Manage the Special Events and Barricading group and provide assistance to staff on special events and difficult and sensitive traffic control issues.
- Perform Safety Analysis and produce statistical reports on traffic safety in the City.

When Assigned to the Streets and Traffic Operations Division:

- Manage the City's Pavement Management Program; ensure automated pavement management system data reflects real time conditions in the field; maintain an automated pavement management information system; develop and maintain linkages to transportation related GIS databases; develop and implement pavement maintenance programs and cost effective strategies.
- Manage consultant and contractor work; coordinate the design, bid, and construction of all pavement preservation, street reconstruction, minor concrete, and miscellaneous special projects associated with the City's transportation system with the City's Engineering Division.
- Coordinate development of the Capital Improvement Program budget for the City's Pavement Management/Street Maintenance Programs (Fund 54).
- Manage field inventory of street system, including major arterial, collector, and residential street networks; catalog street conditions; classify pavement distress conditions and recommend appropriate maintenance work; prepare maps/graphs reflecting condition trends; maintain inventory records.
- Represent the Division on all technical pavement management issues including the design, bid, and construction of transportation system improvement projects.

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- Conduct research and stay current on best practices as they relate to pavement materials and street maintenance/construction procedures
- Manage, supervise, and/or perform project management activities on street maintenance and improvement projects.
- Assume major responsibility for the inspection, testing, and acceptance of complex City maintenance and construction projects including annual street sealing and minor concrete improvement programs to ensure compliance with specifications, plans, codes, and ordinances.
- Prepare city council staff summary reports; prepare pay estimates and progress reports; initiate change orders.
- Perform other duties as assigned.

When Assigned to the Water Utilities Division:

- Participate in conceptualization, review and approval of private development engineering plans relative to the water/wastewater infrastructure.
- Perform system modeling studies of the distribution and collection infrastructure to include water, wastewater, stormwater and irrigation water system. Maintain and develop databases for water infrastructure system models; prepare or supervise preparation of programs to meet the future water infrastructure needs of the community.
- Exercise, update and maintain the City's water and sewer infrastructure models.
- Review water/wastewater capital improvement projects and coordinate with Engineering to meet water utility needs.
- Provide oversight to professional staff and outside consultants in the preparation of technical and/or specialized planning reports related to Water Utility Division infrastructure matters, including flow studies and other field studies.
- Perform other duties as assigned.

Minimum Qualifications:

Experience:

Civil Engineer

Effective November 15, 1988

Revised June 1997

Revised February 2001

Revised March 2004 (Transportation duties)

Revised May 2004 (Streets/Traffic Ops duties)

Revised October 2006 (added Transportation – Traffic Eng duties)

Revised August 2014 (updated exp/education to meet PE req for Sr)

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Some directly related engineering experience is desirable.

Senior Civil Engineer

Four years of professional civil engineering experience and project management. In addition, two years of increasingly responsible experience in the assigned work area – Capital Improvement Projects, Traffic Engineering, Transportation ITS, Streets Pavement Management, and/or Water and Wastewater Engineering.

Education:

Civil Engineer

Equivalent to a Bachelor's degree from an accredited college or university in civil engineering or a degree related to the core functions of this position.

Senior Civil Engineer

A Bachelor's degree from an accredited college or university in civil engineering or a closely related degree.

Licenses/Certifications:

Senior Civil Engineer

Possession of a Certificate of Registration as a professional engineer in the State of Arizona.

Examples of Physical and/or Mental Activities:

- Operate city vehicles
- Work in a stationary position at desk or at computer for considerable periods of time
- Operate computers, calculators and other office machines
- Considerable reading and close vision work
- May work alone for extended periods of time at the office
- May require working extended hours
- May traverse uneven surfaces

Competencies:

<http://www.tempe.gov/home/showdocument?id=26274>

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Job Code: 371/397

Status: Exempt / Classified